Psychology of Sport and Exercise 11 (2010) 58–66

Contents lists available at ScienceDirect

Psychology of Sport and Exercise

journal homepage: www.elsevier.com/locate/psychsport

UK chartered physiotherapists' personal experiences in using psychological interventions with injured athletes: An Interpretative Phenomenological Analysis

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ARTICLE INFO

Article history:
Received 7 April 2008
Received in revised form
26 April 2009
Accepted 14 May 2009
Available online 21 May 2009

Keywords:
Psychology of injury
Physiotherapists experiences
Psychological intervention techniques
IPA
Sport injury rehabilitation

ABSTRACT

Objectives: Despite the gradual growth of psychology of injury literature, thus far few studies have investigated physiotherapists' personal experiences in using psychology in their work. Therefore the purpose of this study was to explore the physiotherapists' personal experiences in using psychological intervention techniques as part of sport injury rehabilitation.

Design: This study adopted a qualitative approach when exploring chartered physiotherapists' personal experiences in using psychological intervention methods in their work with injured athletes. Semi-structured interview schedule was devised and the data obtained was analyzed by using the Interpretative Phenomenological Analysis (IPA; Smith (1996)).

Methods: Seven (4 female, 3 male) physiotherapists working in sports medicine in the United Kingdom participated in the interviews.

Results: Following the IPA analysis, the physiotherapists in this study were very open about their lack of formal training in sport psychology, and appeared to be knowledgeable and comfortable in using goal setting and encouraging social support. Familiarity with, and experiences of using other techniques (i.e., imagery, relaxation, and self-talk) seemed to be less apparent. The physiotherapists also stressed the importance of 'gut-feeling' and experiential knowledge.

Conclusions: The study provides a valuable insight into physiotherapists' real-life experiences in using psychological interventions. Based on the findings, it can be recommended that further training on a range of psychological techniques would be useful.

Over the past thirty years, researchers in sport have explored psychological facets of sport injuries, and as a result, a large body of literature exists in support of addressing the psychological aspects of injuries during rehabilitation. For example, issues with athletes' ability to cope with pain, stress and anxiety, and apprehensions related to self-efficacy, self-esteem, and confidence, along with problems associated with athletes' motivation and rehabilitation adherence/compliance can all be facilitated through the use of psychological interventions (e.g., Beneka et al., 2007; Flint, 1998; Ievleva & Orlick, 1991; Taylor & Taylor, 1997)

In order to reflect the mind-body approach to recovery process, if at all possible, the care provided should entail the involvement of relevant sport medicine professionals, as well as the use of sport psychologists (Green, 1992). All of the professionals involved in the process should work closely together with the athlete towards a common goal in ensuring the athletes full physical and psychological recovery back to pre-injury level of performance. Having such a multi-disciplinary team working with injured athletes is common practice in professional sports (Wiese-Bjornstal & Smith, 1999); however unfortunately such is thought to be rarely the case amongst athletes involved in lower levels of participation. In a recent national study with UK physiotherapists, only 25.3% of the physiotherapists indicated that they had access to a qualified sport psychologist (Arvinen-Barrow, Hemmings, Weigand, Becker, & Booth, 2007). Amongst sport injury rehabilitation professionals working in professional football in England and Wales however, the same figure was reported as 69% (Heaney, 2006), thus suggesting elite/professional athletes as being more likely to have an access to a sport psychologist.

As psychological issues can play a significant part in any athletes' recovery to full fitness, and only few physiotherapists appear to have access to a sport psychologist, addressing psychological issues

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doi:10.1016/j.psychsport.2009.05.004

during rehabilitation often becomes the responsibility for the physiotherapists (e.g., Jevon & Johnston, 2003). A number of researchers (e.g., Gordon, Potter, & Ford, 1998; Gordon, Potter, & Hamer, 2001; Pearson & Jones, 1992; Wiese & Weiss, 1987; Wiese, Weiss, & Yukelson, 1991) have suggested that medical professionals in regular contact with the athlete during treatment are in an ideal position to inform, educate, and assist with both psychological and physical process of injury. Ray, Terrell, and Hough (1999) believe that medical professionals such as physiotherapists are an important source of emotional first aid to athletes during injury recovery, and should be utilizing a range of psychosocial counseling techniques and strategies with injured athletes. According to Harris (2005), physiotherapists should be skilled enough to recognize a range of psychological reactions experienced by injured athletes, and to have the skill-set to intervene (i.e., use basic psychological interventions), and in case of clinical issues (e.g., depression, substance abuse, and eating disorders), have the ability to recognize the need for referral.

However, during their professional training, very rarely do physiotherapists receive the level of training required in the use of psychological interventions (Kolt & Andersen, 2004b). In fact, during their studies, physiotherapists may receive very little or no training in terms of how psychological techniques can facilitate recovery processes and how to use these techniques in their work with injured athletes (Taylor & Taylor, 1997). More recent literature suggests that while virtually all university and college physical and manual therapy programs do employ some psychology training, a high variation exists in the context and depth of the taught material (Kolt & Andersen, 2004b), and often the extent to which training is provided depends on the person planning and delivering the training (Harris, 2005). Given the importance of physiotherapist ability to address psychological facets of injuries, and in order to make recommendations for further training in these issues, exploring the role of physiotherapists in providing psychological support during injury rehabilitation can be considered vital.

In the UK, past research in this area is limited and has included both quantitative and qualitative methodologies. Hemmings and Povey (2002) administered the physiotherapists and sport psychology questionnaire survey (PSPQ; Hemmings & Povey, 2002) to a sample of chartered physiotherapists in the Eastern region of England ($N = 90$). A few years later, Heaney (2006) replicated Hemmings & Povey's research with a sample of physiotherapists working in English professional football ($N = 39$), and complemented the questionnaire responses with content analyzed semi-structured interviews with conveniently selected chartered physiotherapists ($N = 10$). The most recent research to date using the PSPQ was a comprehensive national survey ($N = 361$) amongst chartered physiotherapists working in sports medicine in the UK (Arvinen-Barrow et al., 2007).

By surveying the physiotherapists' views on sport psychology as part of their work, the aforementioned studies have been able to produce a large amount of quantitative data in relation to UK physiotherapists' current views on the psychological facets of their practice. In all three studies, the physiotherapists agreed that on most occasions, sport injury will have an impact on an athlete psychologically. Physiotherapists also identified a range of psychological characteristics present in athletes who cope/do not cope successfully with their injury, with treatment compliance and attitude towards rehabilitation/injury listed as the most frequent characteristics in all three studies. The same studies also indicated a clear pattern in the use of, and desire for future training in range of psychological skills/techniques. The use of goal setting, creating variety in rehabilitation exercises, and encouraging athletes to use positive self-talk were reported as the most used techniques by the physiotherapists. The same skills/methods were also considered to be the most important techniques to learn more about. A similar pattern was also evident with the less frequently used techniques. Relaxation and imagery were used the least and were reported to be some of the least important skills/techniques physiotherapists wanted to learn more about.

Arvinen-Barrow et al. (2007) proposed a range of suggestions as to why such patterns might be occurring. According to the authors, one of the reasons could be due to the level of knowledge of some of the techniques. Equally, the findings could also be due to past experiences in using such techniques. Furthermore, the results could be merely a reflection on the perceived characteristics of the techniques. As Arvinen-Barrow et al. and other similar studies in the UK (i.e., Heaney, 2006; Hemmings & Povey, 2002) used quantitative methods, (i.e., PSPQ questionnaire survey), the reasons for the emergent patterns have been left unclear.

Thus far two qualitative studies investigating physiotherapists' role in the psychological rehabilitation from injury in the UK have been published. A study by Jevon and Johnston (2003) was concerned with governing body chartered physiotherapists ($N = 19$) perceived knowledge and attitudes towards psychological aspects of sport injury rehabilitation. Their findings suggested that the physiotherapists had built a wealth of knowledge on the psychology of injury through experiential learning. In addition, despite the lack of formal education in psychological theory and relevant intervention techniques, physiotherapists had also accepted the role of providing psychological support to the injured athletes. Physiotherapists' accounts on the practicalities of providing psychological support (i.e., their experiences of using psychological intervention techniques) were not included in the topics covered.

Similarly, study into physiotherapists 'lived experiences' with 10 chartered physiotherapists working with elite athletes deviated from the trend for evidence-based research by seeking practice-based evidence on the topic (McKenna, Delaney, & Phillips, 2002). The study used a phenomenological approach, and aimed to describe the physiotherapists' lived experiences of treating elite athletes. In this study the physiotherapists felt that they have a major role in making sure that rehabilitation works for elite athletes. Physiotherapists also possessed understanding on different psychological intervention techniques; however applying such knowledge in their work was not demonstrated. As the research focus was on the physiotherapists' accounts of the processes of treating elite athletes, and not specifically in physiotherapists' experiences of using psychological intervention skills/techniques on a practical level, further research is justified.

In conclusion, it has been acknowledged that in order for the treatment to be effective, physiotherapists are required to address both physical and psychological aspects of injuries. Despite the gradual growth of psychology of injury literature, thus far no studies in the UK appear to have investigated physiotherapists' personal experiences in using psychological intervention techniques in detail. Therefore the purpose of this paper is to explore the UK chartered physiotherapists' personal experiences in using psychological intervention techniques as part of their work with injured athletes.

Method

Design

As the aim of the current study was to explore the physiotherapists' personal experiences in using psychological intervention techniques as part of their work with injured athletes, a phenomenological approach was adopted. The participants' data was therefore collected by using semi-structured interviews and

analyzed by Interpretative Phenomenological Analysis (IPA; Smith, 1996), as is "offers psychologists the opportunity to learn from the insights of the experts – research participants themselves" (Reid, Flowers, & Larkin, 2005, p. 20).

Participants

Twelve participants who had participated in the authors' previous research (Arvinen-Barrow et al., 2007), and had also expressed their interest in participating in further research, were approached for this study. Of those, five chose not to participate due to other commitments. The final sample consisted of 4 female, and 3 male ($M \pm SD$/*R* age = 41.00 ± 8.99/28-56) chartered UK physiotherapists working full time (private practitioners, freelance physiotherapists, and national governing body physiotherapists) in sport medicine. On average, the physiotherapists reported treating 37.14 ± 32.13 sport-related injuries per month, ranging from 10 to 100. The treated athletes ranged between recreational and international levels of competition.

Interview schedule

The semi-structured interview schedule was constructed following the guidelines set by Smith (1995) and Smith and Osborn (2003). All of the interview questions were framed in an open and broad manner, and designed to give a "gentle nudge from the interviewer" (Smith & Osborn, 2003) to the participant, rather than leading the interview towards a pre-determined direction. A general question "tell me about your personal experiences in working as a chartered physiotherapist?" was used to begin the interview. The first topic focused on the physiotherapists' personal experiences and views on the process of psychological rehabilitation of the injured athlete. The second topic had an emphasis on physiotherapists' personal experiences of using psychological intervention techniques (i.e., goal setting, imagery, self-talk, relaxation, social support) in their work. A pilot interview was then carried out with a chartered physiotherapist. The interview lasted 90 min, and was later transcribed verbatim and subsequently analyzed. As a result, the repetition of questions was noted and therefore minor changes to the wording of the questions were made.

Procedure

Prior to the interviews, the participants were given an information sheet about the research. For each participant, a convenient and suitable time and location was arranged, and all of the interviews were carried out in a quiet, comfortable location with only the interviewee (first author, with no previous relationship with the participants) and the participant present. At the start of each interview, each participant were given a demographic sheet to complete approximately 30 min was spend on general discussion, with the aim of building a rapport with the participant. Following on, a tape recorder was then used (with the participants' consent) to record the interviews. On average, the interviews lasted 52 min, during which the participants had an opportunity to tell their experiences of using psychological intervention techniques in their work. The study followed the ethical principles set by the British Psychological Society (2006) and prior to the commencement the study was approved by the author's university's ethics committee.

Analysis

All of the interviews were transcribed verbatim. Following the IPA procedures described by Smith, Jarman, and Osborn (1999), first, an in-depth familiarization of the data was conducted by reading and rereading the transcripts several times. One of the participants, Amanda (name changed to ensure anonymity) was randomly selected to inaugurate the more detailed analysis. On the left margin, the transcript was reworded to ensure the researchers' understanding of the participants' accounts. In addition, preliminary comments, associations and summaries were also noted on the left margin. Using the preliminary notes as a guide, the emergent associations and themes were then documented on the right margin. Once completed, a master file of the emergent themes from the transcript was created by using the MindGenius Education Enterprise 2005 program. This computerized formation of the master list of themes enabled a clear visual display of the emerged themes.

The above procedure was repeated for all of the remaining transcripts. The master list generated from Amanda's transcript was used as a template for all of the subsequent transcripts. The template was modified to take account of any differences between the original themes that emerged from Amanda and the other participants. These master lists were then compared with the aim of looking for connections between the lists. The themes identified were collated and combined with actual quotes from the transcripts. Such procedure enabled the clustering of the subordinate themes into the overarching superordinate themes. Some superordinate and subordinate themes were dropped due to lack of support from the transcripts. During the course of the analysis and to ensure inter-rater reliability, the transcripts and emerging themes were read and verified by research supervisors, and as a result of discussions, the final themes were mutually agreed upon. In addition, the participants were given a chance to review their personal interview transcripts and to comment on the emergent themes, but none of the participants decided to take on the opportunity.

Results

The physiotherapists' personal experiences in using psychological interventions with injured athletes were influenced by a range of factors. This section presents the emergent themes from the physiotherapists' interviews. In total, four superordinate themes emerged, each of which contained a number of sub themes. Table 1 displays the sub themes in each of the superordinate themes.

Acquired knowledge

With regards to the physiotherapists existing knowledge on sport psychology, two themes emerged as dominant. It appeared that amongst the physiotherapists in this study, all of the

Table 1
Master table of the themes.

Superordinate themes	Sub themes
Acquired Knowledge	• Limited formal training • Awareness of athletes' emotional process
Understanding intervention techniques	• Setting goals is vital • Imagery misunderstood • Misconceiving relaxation techniques • "We are massively positive" – but not encouraging positive self-talk • Recognising the importance of social support
Experiences on using intervention techniques	• Role of personal perceptions and attitudes • Intuition – "I go on my gut" • The athlete in the process • Notion of time
Physiotherapists' role in the process	• Recognising the importance of psychological rehabilitation • Role clarity

participants had received very little formal training. Despite such formal training, physiotherapists demonstrated a good understanding of the emotional process that might be prevalent amongst injured athletes during rehabilitation process.

Limited formal training

All of the physiotherapists interviewed were explicit about their level of formal training. For example, when asked about his previous psychological intervention training, Martin indicated having had a couple of lectures of psychology as part of his physiotherapy degree. Isobel responded with laughter and stated: "I only had three weeks in the three years of my training… of psychology… mm… a… to do with the… … what can I say… something with which means structure of the setting… a dabble". Amanda stated that she had not any psychological intervention training at all.

Awareness of injured athletes' emotional process

Despite the lack of formal knowledge, all of the physiotherapists were very explicit about the emotional process athletes tend to go through during injury. When describing the psychological process during rehabilitation, James stated: "when injured, athletes will go through the grieving process from sort of denial to euphoria, through to depression, or acceptance, all those different stages there that you find they are there". Correspondingly all of the other physiotherapists interviewed provided similar responses. For instance Ben indicated that "different psychological elements of things will come at different stages, how you would bracket them, no I am not sure".

Understanding psychological interventions

When talking about their experiences of using different psychological interventions in their work, great disparity in the physiotherapists existing knowledge on the interventions was apparent. In particular, physiotherapists appeared to possess a good level of knowledge on the use of goal setting and social support, whereas their understanding of imagery, relaxation techniques, and positive self-talk varied.

Setting goals is vital

All of the physiotherapists regarded goal setting as an integral part of rehabilitation. When asked about her experiences of using goal setting in rehabilitation, Isobel stated: "yeah, I can tell you about my experiences, others not using goal setting, there; there is no question that you cannot use it". According to Ben:

> Goal setting is vital… mm… and very useful, very effective… because it is certainly for something where they can measure it themselves and see how they are doing Monday, Tuesday, Wednesday, Thursday and then by Friday they are getting the results that they want, so I think that's, that's certainly vital.

Some of the physiotherapists demonstrated great understanding of the different levels of goals employed during rehabilitation: "I set short-term goals and long-terms goals all the time. Long-term goals will always be return to play with athletes. Short-term goals will be… decreasing pain, increasing the range of movement, increasing the physical strength." (James)

However, the goal setting procedure seemed to be very much unidirectional and in parts, unplanned. During the initial assessment, the overall aims and long-term recovery goals for the rehabilitation were very much discussed with the athlete. On a short-term day-to-day level, the rehabilitation-process goals appeared to be very much controlled by the physiotherapists:

> I think I use it very much in my own on… for my own treatment techniques, in other words I, I set out assessing somebody I decide well I want to achieved a better… I use goal setting right throughout my whole treatment with them; you know whether that would be half an hour with them or up to 3 h… (Allison)

On occasions, the physiotherapists explained how they set targets for the rehabilitation process; however such was not formally labeled as goal setting: "I don't sort of formally think it is goal setting it is just; well first; it is just that… that's… probably what it is… I set out standard to say this… once you can do this, then we will go onto this next stage so they know where they are…" (Amanda). All of the physiotherapists also indicated that rather than focusing on the absolute attainment of a goal, their main focus was on the degree to which a physical had been reached. For instance Allison stated:

> even though you haven't necessary achieved the goal… you say well, you know, we got eighty percent of the way there, it may be for the last twenty percent you manage to achieve on your own before I see you again next time, so, mm… and, and I think that is a very important thing, you never send an athlete out with an assumption that the goal was never reached. Even if, even if it wasn't, you still, you still have to… you still have to build it up as being, well we got eighty per cent of it there.

Imagery misunderstood

In relation to imagery, the physiotherapists' knowledge and understanding varied. Martin, who had an A-level psychology background demonstrated excellent understanding on what imagery is: "I perceive the classical psychological imagery in terms of imagining yourself getting better". Others displayed some confusion on what imagery entailed. Allison indicated "I use pictures and models to show people what I have just done". For Gemma, imagery was about thinking about the performance and applying these thoughts to the rehabilitation setting: "I do get them to try and think what it might be like in their, in their performance setting".

Misconceiving relaxation techniques

The understanding of relaxation techniques also varied greatly. When talking about her experiences in using relaxation, Isobel indicated using acupuncture: "… I use… quite a lot of acupuncture for… pain modification and relaxation". For Gemma, relaxation techniques included massage: "I use it loads. It is a key to a rehab. So it isn't necessary something… I def… I would not stand over somebody and do… but I would facilitate it, so, for instance we use massage a lot". Similarly James indicated using relaxation, and in that he included the use of Pilates. Merely resting and generally relaxing for the purposes of allowing the injury to heal was also seen as relaxation. To Martin, relaxation was about making sure "you rest properly with this or relax so that you allow things to heal". Of all the physiotherapists interviewed, only Amanda indicated occasional use of what appeared to be Progressive Muscular Relaxation technique (PMR; Jacobson, 1938): "I will do it for individual muscles if I thought that a certain muscle is tense".

"We are massively positive" – But not encouraging positive self-talk

Experiences of using positive self-talk were mainly seen from the physiotherapists' perspective, i.e., how they talk to the athletes. This was evident for all of the physiotherapists, as for instance James stated: "Mm… we are massively positive…" In a similar manner, Isobel indicated having relatively restricted experiences of using self-talk: "I think my experiences are very limited in that… mm… other than… my… with positive attitude to rehabilitation

I think". In another words, the phrase 'positive self-talk' was seen as communicating positively to the athletes during rehabilitation.

Recognizing the importance of social support

Understanding the concept of social support was demonstrated clearly by the physiotherapists. They identified different sources of social support (e.g., family, friends, coach, medical professionals, team mates, and other people with similar injuries who have now recovered). For example, Isobel and James felt that including other agents (e.g., coaches, families, athletes' partners, and team members) in the rehabilitation process was important. On occasions physiotherapists had also introduced athletes to other athletes with similar previous injuries:

> I had an older guy the other day who tore his Achilles tendon, I put him in touch with another guy who, who also tore his Achilles tendon, so they could… sort of discuss about it, and I think that is quite a positive way… mm… helping them to see light at the end of the tunnel at a very very early stage… (Ben)

Experiences of using psychological interventions

Along with existing acquired knowledge, the extent to which any of the interventions were utilized by the physiotherapists depended on several factors. A range of aspects such as role of personal perceptions and attitudes, intuition, the individual athlete characteristics, and the notion of time were all seen as influencing the decision making.

Role of personal perceptions and attitudes

Physiotherapists' personality, and personal perceptions and attitudes played a role in the process of deciding which intervention technique to use. The physiotherapists appeared to favor goal setting, and this was partly seen as a reflection of themselves and their personality. For example, Martin stated:

> I think it probably just comes down to… what I am like as a person. Mm… I'm more of a… I write lists of jobs that I gotta do, and I go through them and I tick them off, and that's, I'm that sort of… that's the way I run my life… everything I do is hands on with stuff… so my, my stuff is to that kind… of practical, this is what we're gonna do, and bang, bang, bang… … so I think that's probably… it's a reflection on me, rather than the techniques I am sure.

Intuition – "I go on my gut"

When deciding on the psychological treatment of the athlete, the use of gut-feeling (i.e., intuition or decisions on a subconscious level) was clearly demonstrated by the physiotherapists. For Ben, choosing psychological interventions was about feeling what was right for each patient: "I don't know. I think is probably just a… almost a… almost a gut feeling with what you feel is the right thing to do with the right client". Allison indicated that she too had no idea how she chose what technique to use with each patient, and she replied with laughter:

> …well, you know what I have no idea. And, and… (laughs)… … If I am really honest, I probably just go on my gut. My gut feeling. But then… if am really honest that's what I do with physio anyway… I would without a doubt say that I use my gut most of the time… …and, and… so far it hasn't let me down so many times so I am quite happy to rely on it (laughs).

The athlete in the process

For all of the physiotherapists, acknowledging the needs of the individual athlete in question was a vital part of the rehabilitation. The injured athletes' personality and situational factors were seen as determinants when deciding what methods to use, with whom, and when. For example, the individual athlete's personality characteristics, type of sport, and time of season factors were also regarded as important when considering the use of psychological interventions. For example according to Allison, some athletes will respond well to goal setting, as it gives them understanding of the rehabilitation: "…they need to know how many… repetitions of an exercise they need to do today… and they need to know how many they are going to do tomorrow… and if they achieve that, then they start improving." Allison also states that for others, knowing how much to do may not be relevant, as long as they are healing: "you know there are other people who… who don't want, they are not that fussed about how many, they just want to know… mm… that it's getting better…" She also indicated the importance of individual differences between the athletes in relation to the use of the team as a means of social support: "some people will respond better to an environment where they are… where they are not with their team mates. And other people need to rehabilitate in an environment where they are with their team mates."

Other physiotherapists shared Allison's views. Martin indicated that the type of sport played a role, as in his opinion athletes involved in track and field tend to have a more "delicate frame of mind in terms of what they will train with and what they will put up with" than those involved in rugby. Ben believed that the individual's state of mind, and previous experiences would have an impact on whether or not they would need to have psychological issues addressed: "…I do believe that there is natural different sorts of people that respond very differently to the same sets of circumstances and situations anyway…"

The notion of time

Along with the above, the "notion of time" also emerged as a determinant for decision making when choosing and using psychological interventions. The time available was seen as central when planning the rehabilitation timelines and setting goals for recovery, and often such was dictated by the next important game, competition or event: "the only thing that I would look at in long-term goals is if there is… what is your next important competition." (Amanda)

Often physiotherapists felt that time available for rehabilitation was not sufficient. As a result, physiotherapists had to prioritize different aspects of rehabilitation and often in such cases using psychological interventions become inconsequential:

> I have been meaning to use relaxation techniques plenty of times… and if I am honest with myself, I haven't got time, to actually do it, I am too busy doing this and doing that, but I think it would very important thing to apply it… (James)

Having enough time available was also seen as an important part of rehabilitation outcome success. A general consensus amongst the physiotherapists was that the more time they were able to spend with each patient; the higher was the likelihood of more successful recovery. For Ben, constantly working to a diary had an effect on what he was able to do with his patients:

> it would be nice that we could spend a… 3 h with every patient that we see… then I am sure we could think of lots of other things to do other than to actually… mobilize, manipulate…soft tissue work… strength, and whatever…

Physiotherapists' role in the process

The final superordinate theme emerging from the interviews was concerned with the physiotherapists' perceived role in

addressing psychological aspects of sport injuries. In particular, physiotherapists' felt that recognizing the importance of psychological rehabilitation was important, and that role clarity in relation to knowing one's own competencies and being able to refer on were reported as essential qualities for physiotherapists.

Recognizing the importance of psychological rehabilitation

Despite the differing levels of knowledge on underlying principles of different intervention methods and perceptions of the usefulness of the methods, the physiotherapists were very explicit about their role in the psychological rehabilitation the athlete. Addressing psychological aspects of injuries were considered as an integral part of a successful physiotherapy treatment. For Gemma, such was seen as "crucial. It is got to be done; it is got to be dealt with". In addition, she also felt that physiotherapists had a central role in the psychological rehabilitation: "I think physio is… part of the basket that we can facilitate an awful lot of things or we can be the cambric to allow those other things to come into rehab".

Role clarity

In essence, physiotherapists' role in psychological treatment was seen as two-fold: (1) to be aware of their own personal competencies and professional boundaries, and (2) to be able to refer an athlete on to a sport/clinical psychologist when necessary. This was evident in all of the transcripts. For example, Isobel stated: "If I can't cope with that in my… own then I have to get the sport psychologists or, whatever to, to… and they will be referred on… because I know my limitations." Amanda agreed with the above and stated that physiotherapists should have an appreciation of the different interventions available, and to know when and to whom to refer on. Similarly Allison stated: "the better physiotherapist are the ones who can identify what they can affect… and know who to refer to if they can't."

Discussion

Based on the findings from this study, it seemed that teaching physiotherapists about psychological interventions and how to use them in practice had not been integrated into the participants' previous physiotherapy training. This was not surprising, as many physiotherapists today are aware of their lack of formal training in psychology and much of their work is solely focused on the physical aspects of recovery and rehabilitation. The findings are also in an agreement with previous research, as it has been suggested that physiotherapists may receive very little or no training in psychological interventions (Hinderliter & Cardinal, 2007; Taylor & Taylor, 1997), and that a great disparity between the depth and context of the taught material exists (Harris, 2005; Kolt & Andersen, 2004b). Such can be seen as a problem, as in order for physiotherapists to obtain an appropriate level of competency in their work, it has been argued that adequate training is needed in the recognition, evaluation, and treatment of psychological factors associated with athletic injury (Cramer Roh & Perna, 2000). It would therefore be beneficial to train physiotherapists further in the psychological aspects of injuries, and to ensure such is effectively integrated into the existing training of future physiotherapists.

One of the unexpected findings of the research was the physiotherapist's apparent understanding of the grieving process and its application to sport injuries. All of the physiotherapists in this study were describing the recovery as being a "stage-like" process, albeit the term 'grieving process' or 'stage models' was not formally utilized. Drawing from the Kübler-Ross's (1969) original stage theory, five main stages have been proposed as applicable to sport injuries: denial, anger, bargaining, depression, and acceptance (e.g., Evans & Hardy, 1995). Thus far the existing research has been able to provide merely partial support for the grief response models (Gordon, Milios, & Grove, 1991; Udry, Gould, Bridges, & Beck, 1997), and the findings from this study are no exception. In this study, the physiotherapists identified initial shock, denial, depression, and acceptance as typical emotions that athletes may go through once injured, subsequently providing some support for the stage models. Similarly to the findings by Udry et al. (1997), in this study the bargaining stage was not reported by any of the physiotherapists.

According to Crossman (1997) experiencing emotional distress and grief as a result of sport injury is predictable and normal amongst athletes, thus identifying different emotional stages amongst injured athletes should be relatively simple and an integral part of the rehabilitation process. After all, in order for any treatment to be effective, physiotherapists (regardless of being trained in psychology or not) should be in a position to recognize/understand and appropriately address number of emotional responses an athlete may experience during the course of the rehabilitation and on a day-to-day basis. Since the development of the integrated model (Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998) very little emphasis on the significance of stage models during injury rehabilitation has taken place. Given the importance of addressing emotional aspects of sport injuries, it might be appropriate to revisit the stage models and re-evaluate the usefulness of stage models during sport injury rehabilitation from a physiotherapist's perspective.

With regard to the physiotherapists' current understanding of the different psychological interventions, the results were inconsistent across the sample depending on the intervention technique discussed. Despite lack of appropriate "labeling", the physiotherapists were relatively knowledgeable on goal setting. It became apparent that physiotherapists were relatively proactive in setting daily physical goals, as well as setting overall recovery goals for both physical and performance outcomes. These goals were, however, very much physiotherapist-mandated and as a result, the athlete had very little or no ownership of the actual goal setting process. It was also evident that inadequate emphasis was placed on setting psychological goals. Similarly setting goals for different stages of rehabilitation and life-style goals were relatively non-existent.

It appears that for most athletes, goal setting forms an integral part of the athlete's everyday training programs. Despite many athletes using goals in hope of improving their performance, during injury rehabilitation such skills are often ignored and/or underutilized for a number of reasons. Research findings to date have suggested that setting goals during rehabilitation can have a positive effect on the athletes' physiological and psychological healing, and it has also been suggested that integrating goal setting into the physiotherapy process is not only profitable, but also easily transferable (Taylor & Taylor, 1997). As the physiotherapists are the experts in relation to the physical aspects of healing process, their knowledge and opinion in relation to the above should be one of the primary matters to consider. In order for goal setting to be successful, it is also imperative for the athlete to be an active part of the process. If the goals are not accepted by the athlete (i.e., goal commitment), the goal setting program is likely to be ineffective. Thus, it can be recommended that physiotherapists should place greater emphasis on including the athlete in the process of goal setting, and further training on how to effectively integrate goal setting into rehabilitation program could be useful.

With reference to mental imagery, the findings were conflicting. Within sport, mental imagery may be considered as the "creation or re-creation of an experience generated from memorial information, which may occur in the absence of the real stimulus antecedents normally associated with the actual experience" (Morris, Spittle, & Watt, 2005, p. 19). When interpreting the participant accounts, it became clear that what both Allison and

Gemma described as imagery does not directly correspond with the formal definition. Presenting pictures as reinforcement for physiotherapists' manual work could be classed as modeling, not necessarily imagery. Similarly, getting athletes to *think* about their performance might not directly be classified as imagery.

The findings from this study appear to confirm the notion that imagery is, and continues to be underutilized in sport injury rehabilitation. To a large extent, this is due to a lack of understanding of the benefits of imagery for rehabilitation, and possibly a result of physiotherapists' erroneous perceptions on what an imagery intervention involves. As a result, opportunities for further training in rehabilitation related imagery interventions should be made available for practicing physiotherapists. However due to existing erroneous perceptions (e.g., Walsh, 2005), and findings from previous research (e.g., Arvinen-Barrow, Hemmings, Becker, & Booth, 2008; Arvinen-Barrow et al., 2007) may suggest that such training would be more beneficial when integrated with other intervention (e.g., goal setting, relaxation) training. If delivered as standalone training, physiotherapists may not feel that taking part in such training is beneficial to them as an individual, especially if it involves a personal financial contribution and/or long distance travelling.

Along with imagery, using relaxation during rehabilitation also appeared to be underutilized by the physiotherapists. More specifically, it became evident that physiotherapists in this study had few experiences of using specific relaxation techniques during injury rehabilitation. Whilst acupuncture, having a "down time", massage, and Pilates can be considered to be relaxing activities, they are not specifically considered to be relaxation techniques for rehabilitation as understood by sport psychologists.

According to Taylor and Taylor (1997), there are two types of relaxation strategies that can be seen as effective for injured athletes: passive relaxation (Taylor, 1996) and PMR (Jacobson, 1938). Passive relaxation can assist athletes who experience low levels of muscle tension. In order for passive relaxation to work, the athletes should be aware of this tension and interested in releasing it. For athletes who are unaware of the muscle tension and the muscle tension is a source of general discomfort and increased levels of pain, the use of PMR is recommended (Taylor & Taylor, 1997). In addition deep breathing as been found to be an effective way to control pain and anxiety during rehabilitation (Taylor & Taylor, 1997, 1998), as it facilitates oxygen to the injured area and therefore facilitates healing, as well as relaxing the muscles.

Based on the participants' accounts, it appeared that none of the above mentioned techniques were actively utilized by the physiotherapists. As the benefits of using relaxation techniques are often amplified when used with imagery (and vice versa), providing physiotherapists with further training in relaxation techniques in conjunction with imagery would be favorable. In addition, as physiotherapists did feel that relaxation was "part of physio anyway", gaining physiotherapists interest in attending such training could be increased. However, as with imagery, integrating relaxation with goal setting would have the potential to attract more participants to take part in the training.

Like imagery and relaxation techniques, physiotherapist's understanding of self-talk also varied. Positive self-talk as a psychological tool has been defined as "a multidimensional phenomenon concerned with athletes' verbalizations that are addressed to themselves, which can serve both instructional and motivational functions" (Hardy, Hall, & Hardy, 2005, p. 905). In other words, self-talk is about intrapersonal communication, and does not involve any outside influences (e.g., physiotherapists). In light of the above definition, it appears that the type of talk physiotherapists were referring to was not self-talk as defined by sport psychologist, but rather motivational talk from the practitioner to a client. The physiotherapists were generally very positive, informative, and talkative during the rehabilitation process, but based on their accounts, it was unclear whether or not they encouraged the athletes to use positive self-talk during the process.

Educating physiotherapists on self-talk and how to encourage athletes to use it during rehabilitation would be profitable. Physiotherapists in this study displayed high level of understanding of the importance of staying positive, yet failed to initiate athletes' own personal self-talk. According to Brown (2005), injury often causes athletes to lose confidence and experience negative and sometimes catastrophic thoughts. By using a reframing technique, such negative thoughts could be turned into positive ones, and thus would enhance athletes' motivation and confidence during rehabilitation. For example, in a study by Gould, Udry, Bridges, and Beck (1997) on skiers who had encountered season-ending ankle and knee injuries, the athletes who had successfully recovered from their injuries all indicated that "managing emotions and thoughts" was one of the key coping strategies they had used.

However, when designing such training, one needs to be careful of the extent to which this technique (as well as any of the other techniques) can be considered to be a part of a physiotherapist's role. After all, if an athlete does not perceive encouraging positive self-talk as part of physiotherapists natural remit, it is likely that it will hinder the rehabilitation process rather than facilitate recovery. For that reason, further research in identifying the physiotherapists' role from the athletes', coaches' or even other medical professionals' perspective is warranted.

With regard to the use of social support, physiotherapists in this study demonstrated that over years of practice, they have accumulated a wealth of the understanding of different types of social support useful to injured athletes during the recovery process. In addition, physiotherapists appear to have built an excellent network of people around them to whom, if necessary, they were able direct injured athletes for social support.

The findings from this study corroborate those of previous research; substantial evidence exists to support the importance of using social support from family and friends as part of the rehabilitation process (Brown, 2005). The relationships between different medical professionals and the athlete are also very likely to have a significant impact on the recovery, as well as the use of team mates as a form of social support have also been found to be useful, provided that the injured athlete feels comfortable with the arrangements (Andersen, 2007). In addition, support for using peer modeling (i.e., having interactions with athletes who have successfully recovered from similar injuries) has also been found to be an excellent source of social support for injured athletes (Wiese & Weiss, 1987).

In light of above, possessing understanding of physiotherapist personal role in the process of providing social support to injured athletes can be considered vital. If the physiotherapist has an understanding of his/her role as a source of social support to the athlete, they are more likely to be aware of the ways in which their behavior, knowledge, and understanding can influence athletes emotional and behavioral responses to the injuries. Whether or not physiotherapists should be acting as a facilitator for the athletes to seek social support from other sources (e.g., family, friends, team mates, and coach), depends on the individual athlete. Nevertheless, just by merely "being there" for the athlete can have a significant impact on the recovery process.

Overall, it appeared that the majority of the decisions in regards to using psychological interventions with injured athletes were based on intuition and gut feeling. More specifically, choosing psychological interventions was mainly based on experiences gained through experiential learning and trial and error, rather than systematic procedures based on knowledge acquired through

formal learning. For example, Allison appeared to base a lot of her decisions on previous experience and how through experience, she had learned to recognize different characteristics of an athlete. The above findings are also in agreement with (Arvinen-Barrow et al., 2008, 2007; Hinderliter & Cardinal, 2007; Kolt & Andersen, 2004a) by highlighting the importance of providing further training to the practicing physiotherapists.

It was also encouraging to see that despite a lack of formal training in psychology, all of the physiotherapists in this study were very much aware of the importance of recognizing athletes' individual differences during rehabilitation. All of the physiotherapists placed importance on treating each athlete on a case-by-case basis, and to avoid direct comparisons to other athletes. These findings are also in support of the wider literature, as the role of personality traits as mediators in the athlete's responses to sport injuries have been well documented in the literature. According to the integrated model (Wiese-Bjornstal et al., 1998), personality traits will have an impact on athletes coping tendencies, perceived levels of stress, and cognitive appraisal processes. These will then influence the athletes' rehabilitation behavior, which in turn will have an effect on the rehabilitation outcomes.

Another significant finding from the analyses was the importance of time available as a determinant for the use of psychological and/or physical interventions. Often the time available for rehabilitation is mandated by the competitive calendar (Jevon & Johnston, 2003) and the question of "when am I fit to play" appears to be one of the most important questions an athlete wants an answer to. Indeed, according to Taylor and Taylor (1997), for most injured athletes, knowing how long it will take them to get back to full fitness is paramount. Such pressures are often imposed on the athlete (and consequently on the physiotherapists) by other external influences such as the team, managers, and coaches. Conversely, athletes themselves often impose unrealistic timescales on themselves and on their rehabilitation process. Using systematic goal setting and involving the athlete (and in some cases, coaches, and managers) in the process can assist in alleviating any negative psychological responses the athletes might be experiencing due to such pressures.

As a result, acknowledging the timing of the injury in relation to the competitive calendar and planning realistic goal setting around it and the actual physical healing time would be useful. Not only would systematic goal setting benefit the athlete, but setting clear rehabilitation goals could also alleviate any pressures placed on the physiotherapists. External pressures in relation to unrealistic timescales can often lead physiotherapists *feeling* that they do not have enough time to address several issues, and as a result, different aspects of rehabilitation need to be prioritized, and more often than not, it is the psychological rehabilitation that is ignored.

According to the existing literature, such need not to be the case. It has been proposed by Taylor and Taylor (1997) that psychological rehabilitation can be done collectively with physical recovery. In order for psychological rehabilitation to be successful, it would be imperative not to view psychological rehabilitation as diminishing time available for physical recovery, but rather see it as a facilitator for speedy recovery. For example, using pain management techniques at the early stages of rehabilitation (e.g., with range of motion exercises), or addressing anxiety related issues when rebuilding strength can assist the athlete in staying positive and focused on the rehabilitation, which could then lead onto successful rehabilitation.

In addition to the above, knowing when to refer an athlete on was also perceived as important by the physiotherapist. Having the ability to recognize possible psychopathologies and being aware of personal professional competencies was regarded as vital part of physiotherapy process. In a similar manner, Harris (2005) highlighted the importance of knowing when to refer on and acknowledging your personal competencies in using psychological interventions as crucial. According to Burton (2000) on average, athletes tend to experience fewer mental disorders than the general population; however the incidence of depression, eating disorders, and substance use can be relatively common amongst injured athletes. Some injured athletes do suffer from meaningful levels of clinical psychological distress (Leddy, Lambert, & Ogles, 1994), and as a result, referring such athletes to mental health professionals (i.e., clinical/sport psychologist) is important as it can assist in injury recovery.

When it comes to successfully using psychological interventions in sport injury rehabilitation, it appears that the athlete needs to feel that the intervention they are receiving is credible and useful (Brewer, Jeffers, Petitpas, & Van Raalte, 1994). If the athlete feels that a physiotherapist is implementing something outside their natural remit, they are likely to be non-compliant and intervention will be unsuccessful. However, as psychological difficulties are common amongst many injured athletes (e.g., Arvinen-Barrow et al., 2007; Heaney, 2006; Hemmings & Povey, 2002), to an extent, it is important for physiotherapists to be able to provide psychological support to the injured athletes. As a consequence, being aware of personal competencies and having the ability to refer on when necessary can facilitate the rehabilitation process and the injured athlete as a whole.

Conclusions

The findings from this study provide some insights into the ways in which physiotherapists have experienced using psychological interventions in their work with injured athletes. Based on the findings from this study, it appears that the physiotherapists believe it is necessary to use psychological skills in their work with injured athletes. It was also evident in this study that formal training in these issues has been minimal. Such disparity between the practical world and the existing training would indicate the need for further training in the use of psychological interventions. In particular, increasing physiotherapist's awareness of the different techniques available and the ways in which psychological interventions can be successfully integrated into physiotherapy process would be beneficial. However, prior to making any specific recommendations as to how such could be implemented, and in order to ensure successful delivery such training, it would also be important to seek clarification into injured athletes' views on the physiotherapists' role in providing psychological support during sport injury rehabilitation.

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